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Feature Article - Forthcoming changes: industry, occupation and status in employment data (original version)

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FORTHCOMING CHANGES: INDUSTRY, OCCUPATION AND STATUS IN EMPLOYMENT

INTRODUCTION

The ABS is changing the way it codes industry, occupation and status in employment data in the Labour Force Survey (LFS). These changes will be introduced for the February 2000 survey.

Although no changes have been made to the classifications used, the changes to coding procedures mean that estimates classified by industry, occupation and status in employment from February 2000 onwards will not be strictly comparable with earlier data. Aggregate estimates of employment and unemployment are unaffected.

This article describes the changes in coding methods, and provides estimates of the size of "breaks in series". It also provides adjustment factors to enable employment estimates for periods prior to February 2000 to be compared with those for February 2000 and later surveys.

INDUSTRY

LFS industry data are classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC) and are coded at the ANZSIC Group (3 digit code) level. For employed persons, these data are collected in the mid-month of each quarter.

The LFS currently asks each employed person to provide, for their main job:

- the name and address of their employer or the business in which they work, and
- a description of the industry, business or service carried out at that address.

In current LFS coding, the employer or business name and address is compared with information

on the ABS Business Register. Where a matching entry is found, the ANZSIC Group code recorded on the Business Register is assigned to the LFS respondent.

Where there is no matching Business Register entry (about 50% of cases), the respondent's description of industry is coded manually, using an ANZSIC Alphabetic Coding Index. The Index lists descriptions of primary economic activities and the ANZSIC Industry Group codes to which they are classified.

For some time the ABS has found it costly and difficult to maintain accurate location level information on its Business Register for large, multi-location businesses. On cost-benefit grounds, ABS has decided to cease recording location level data for such entities in certain industries. As a result, the rate of matching responses to the Register is expected to drop to levels that will make the current coding method no longer viable.

From the February 2000 survey onwards, only the respondent's description of their employer's or business's industry will be used to assign an appropriate ANZSIC Group code. After assessing a number of options, the ABS has also decided to introduce computer assisted coding (CAC) in place of manual coding. The system being adopted is similar to that already used for the national Census of Population and Housing.

OCCUPATION

In the LFS, occupation data are collected for all employed persons in the mid-month of each quarter. Responses are classified according to the Australian Standard Classification of Occupations (ASCO) Second Edition, at the ASCO Unit Group (4 digit code) level.

The LFS asks each employed person to describe, for their main job, the job title and their main tasks or duties. This description is currently coded manually, using an ASCO Alphabetic Coding Index to find the appropriate ASCO Unit Group code. The Index lists descriptions of job titles and activities and the Unit Group codes to which they are classified.

From February 2000, respondents descriptions of their occupation will be assigned an appropriate ASCO Unit Group code using a CAC system. The system is similar to that to be adopted for industry coding, and to that used in the national Census. The CAC system is expected to result in more consistent coding than the current method.

STATUS IN EMPLOYMENT

Status in employment (**employee, employer, own account worker, contributing family worker**) describes a person's employment arrangement in relation to their main job. Like industry and occupation data, it is collected in the mid-month of each quarter.

In the LFS, status in employment is based on the person's self-perception of their relationship to the business in which they work, together with the legal status of the business (if it is the respondent's own business). Legal status is required because the owner-manager of an

incorporated business is classed as an **employee**, whereas the owner-manager of an unincorporated business is classed as an **employer** or **own account worker**. This treatment ensures that LFS data are consistent with Australian National Accounts data.

Respondents are asked whether they work for an employer or in their own business and, if in their own business, the name and address of the business and whether it is a limited liability company. In determining a person's status in employment, these responses are currently compared with the ABS Business Register. Where a person's own business is found on the Register, the legal status recorded on the Register is used where it differs from that provided by the respondent.

In line with the industry coding changes described above, from the February 2000 survey, respondents' answers alone will be used in determining the legal status of a business, that is, without recourse to the Business Register.

IMPACT ON ESTIMATES

As a result of the various changes to coding methods, estimates classified by industry, occupation or status in employment for the February 2000 survey onwards will not be strictly comparable with those for earlier periods.

To assess the likely impact of the changes in coding on estimates classified by industry and occupation, February 1999 survey data for employed persons (some 36,000 respondents, already coded by current methods) were re-coded using the new CAC methods. This approach allows breaks in series to be quantified, and adjustment factors to be estimated. The factors, however, are subject to a number of limitations. These are discussed in more detail in the Adjustment Factors section below. Summary results of the February 1999 survey re-coding are shown below. For both industry and occupation series, the percentage change from the old to the new coding method provides an estimate of the break in series that may be expected in February 2000.

For status in employment data, it was possible to re-estimate for surveys from February 1995 onwards, using the new method. These results are also shown below.

For unemployed persons, the industry and occupation of their last full-time job in the previous two years will also be coded by the CAC method. It is impractical to provide a measure of the impact of the new coding method on these data, mainly because the small numbers involved mean that any estimate of the impact will be subject to impractically high sampling variability.

Industry

For employment estimates classified by industry division, the estimated difference in level from the old to the new method varied markedly in size and in statistical significance across the classification.

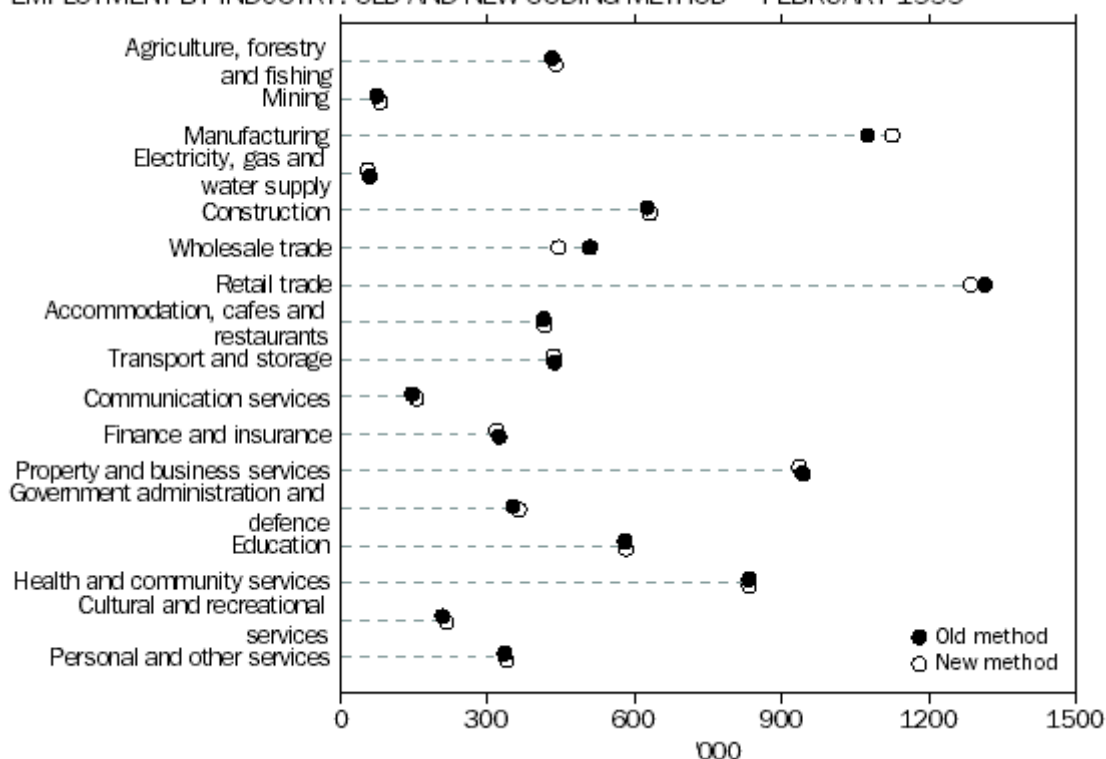
For example, under the new coding method, employment in Wholesale trade was estimated to be 13% lower, based on the re-coding of February 1999 data. In percentage terms, this was the

greatest difference found at the Division level. A significant proportion of responses previously coded to Wholesale trade were coded to Manufacturing and to Retail trade by the new method. The three Subdivisions that comprise Wholesale trade each showed similar falls. There were also significant movements between Manufacturing and Retail trade, resulting in a 5% increase for Manufacturing and a 2% decline in Retail trade.

Other major movements were:

- an increase of 8% in Mining, largely from Property and business services and from Wholesale trade
- an increase of 7% in Communication services, mainly from Transport and storage and from Wholesale Trade
- an increase of 5% in Manufacturing, largely from Wholesale trade and Retail trade
- an increase of 4% in Cultural and recreational Services, with contributions from most other Divisions.

EMPLOYMENT BY INDUSTRY: OLD AND NEW CODING METHOD —FEBRUARY 1999

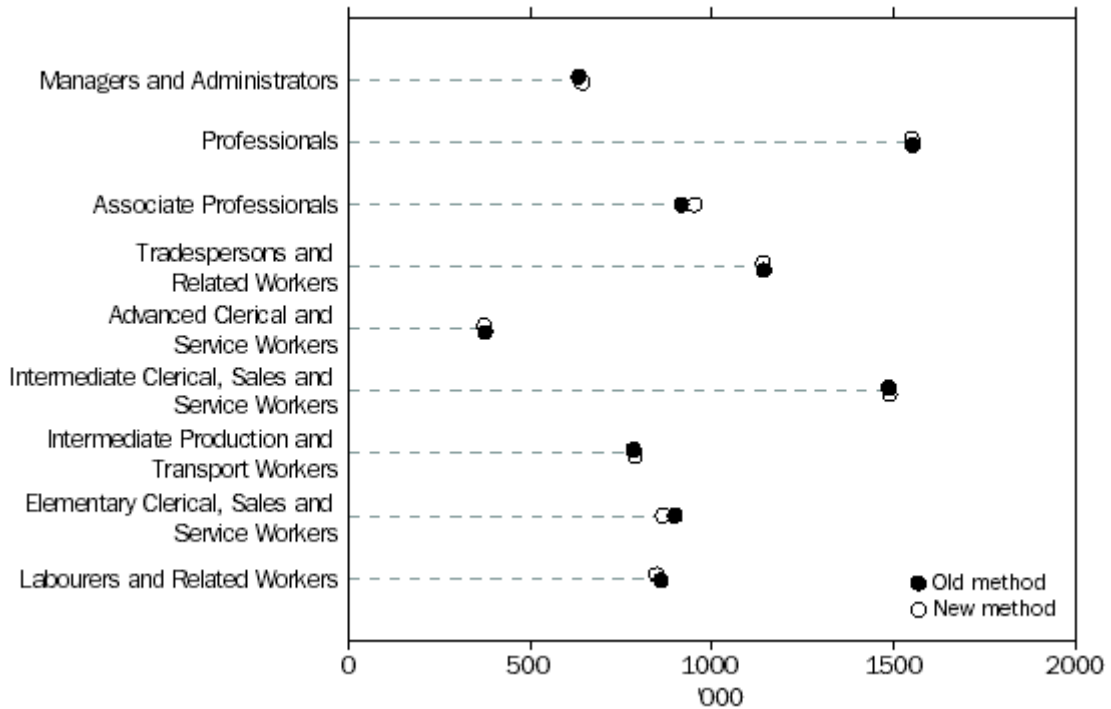


Occupation

Estimates at the Major Group level generally showed smaller changes than for industry data.

The new coding method resulted in an estimated increase of 4% for employed Associate Professionals, with contributions mainly from: Managers and administrators; Professionals; and Intermediate clerical, sales and service workers. In contrast, Elementary clerical, sales and service workers fell by an estimated 4% under the new method, mainly changing to Intermediate clerical, sales and service workers.

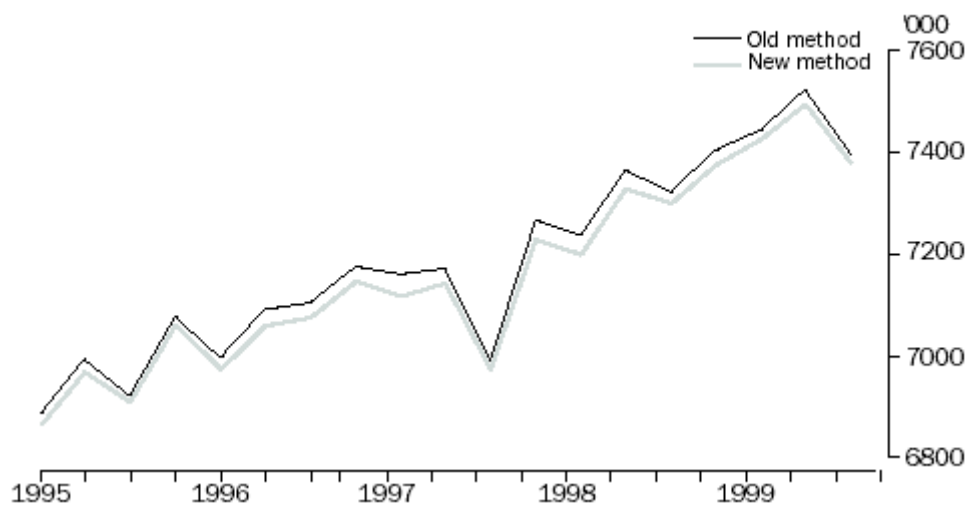
EMPLOYMENT BY OCCUPATION: OLD AND NEW CODING METHOD—FEBRUARY 1999



Status in employment

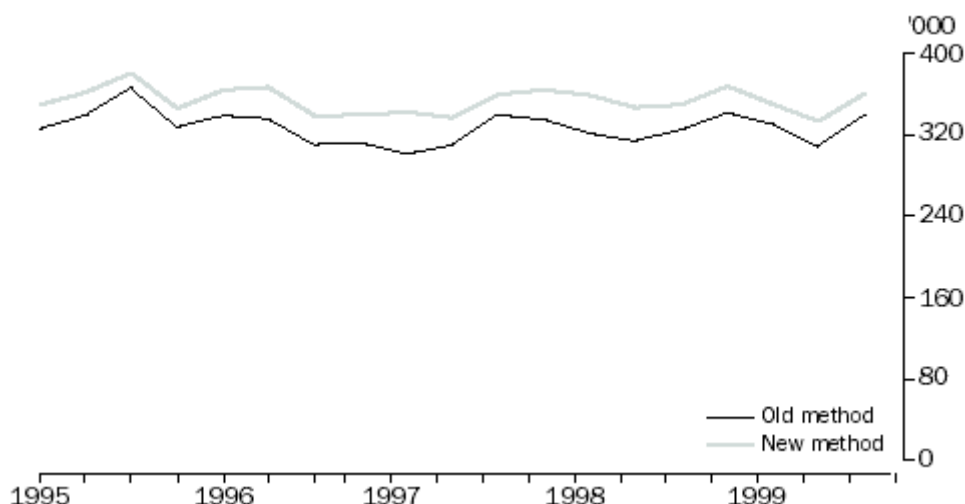
The re-estimated status in employment data for the period since February 1995 showed that, on average, estimates of employees by the new method were 0.4% lower than under the old method.

EMPLOYEES: OLD AND NEW CODING METHOD 1995—1999



For employers, estimates were 8% higher, on average.

EMPLOYERS: OLD AND NEW CODING METHOD, 1995—1999



For own account workers, estimates were 0.1% higher on average, while there was no impact on estimates for contributing family workers. All status in employment differences were relatively steady over the analysis period.

ADJUSTMENT FACTORS

As discussed above, the impact of the changes in coding methods to take effect in the February 2000 survey have been estimated by re-coding occupation and industry responses for employed persons in the February 1999 survey.

The re-coding of previous survey data provides an effective and simple means of estimating the impact of the new coding method, and adjusting for it so that comparisons of industry or occupation data before and after the changes can be made easily. However, this method has some limitations.

The factors were estimated for employed persons at the national level, and at the classification level shown. The factors will be less reliable if applied to estimates by State or Territory, sex, full-time/part-time status or other variables, or at lower levels of the industry or occupation classifications.

Adjustment factors estimated from re-coding a single survey (February 1999) may differ from results that might have been obtained by similar estimation for other periods. The estimated factors are likely to be progressively less accurate when applied to successively earlier periods.

The adjustment factors are based on responses of employed people in various occupations and industries. For unemployed persons, re-coding responses about their occupation or industry in their last full-time job may have produced dissimilar results. Further, any estimates of change would have been subject to impractically high levels of sampling variability.

Like any LFS data, the estimates of percentage change from old to new coding method and the associated adjustment factors are subject to sampling variability. One measure of that variability

is the relative standard error or RSE (see the Technical Notes for more details). Generally, only estimates with an RSE of 25% or less are considered sufficiently reliable for most uses. In the tables below:

- Estimates of percentage change with an RSE of more than 25% but less than 50% are shown with one asterisk (e.g. 4*). The change is probably due to the impact of coding, rather than sampling error, but an accurate estimate of the size of the change is not available
- Estimates of percentage change with an RSE of 50% or more are shown with two asterisks (e.g. 1**). The change in the industry or occupation is not statistically significant, and may be treated as though there were no impact from the change in coding.

The tables below show the estimated percentage change from the old to the new coding method for each industry Division and for each occupation Major Group.

For industry Divisions and occupation Major Groups where the RSE of the estimated percentage change was less than 50%, an Adjustment factor is also shown. Employment estimates for periods prior to February 2000 may be multiplied by the appropriate factor for comparison with those for February 2000 and later surveys. Where no factor is shown, no adjustment is needed.

For example, in February 1999, there were 429,500 employed persons in Agriculture, forestry and fishing. For that Division, the factor shown is 1.018. The February 1999 result multiplied by that factor (i.e. $429,500 \times 1.018 = 437,200$) may reasonably be compared with February 2000 data when released.

INDUSTRY ADJUSTMENT FACTORS, OLD TO NEW CODING METHOD — February 1999

Industry Division	Change %	Adjustment factor
A Agriculture	2	1.018
B Mining	8 *	1.079
C Manufacturing	5	1.048
D Electricity, gas & water supply	-7 *	0.935
E Construction	1 **	—
F Wholesale trade	-13	0.875
G Retail trade	-2	0.977
H Accommodation, cafés and restaurants	0 **	—
I Transport and storage	0 **	—
J Communication services	7 *	1.074
K Finance and insurance	-1 **	—
L Property and business services	-1 **	—
M Government administration and defence	4 *	1.035
N Education	0 **	—
O Health and community services	0 **	—
P Cultural and recreational services	4 *	1.041
Q Personal and other services	1 **	—

* This estimate has a relative standard error greater than 25% but less than 50%. It should be used with caution.

** This estimate has a relative standard error of 50% or more and is considered too unreliable for general use.

OCCUPATIONAL ADJUSTMENT FACTORS, OLD TO NEW CODING METHOD — February 1999

Occupation Major Group	Change %	Adjustment factor
1 Managers and administrators	2 **	—
2 Professionals	0 **	—
3 Associate professionals	4 *	1.038
4 Tradespersons and related workers	0 **	—
5 Advanced clerical and service workers	-1 **	—
6 Intermediate clerical, sales and service workers	0 **	—
7 Intermediate production and transport workers	1 **	—
8 Elementary clerical, sales and service workers	-4 *	0.963
9 Labourers and related workers	-1 **	—

* This estimate has a relative standard error greater than 25% but less than 50%. It should be used with caution.

** This estimate has a relative standard error of 50% or more and is considered too unreliable for general use.

FURTHER INFORMATION

For more information, please contact the Assistant Director, Labour Force Estimates on Canberra 02 6252 6565.

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